UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/830,441	06/11/2001	Mohammed Javed Absar	851663.424US	8038

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Seed Intellectual Property Law Group
Suite 6300
701 Fifth Avenue
Seattle, WA 98104-7092

EXAMINER
FLANDERS, ANDREW C

ART UNIT	PAPER NUMBER
2644	

DATE MAILED: 01/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>11 June 2001</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-26</u> is/are pending in the application.

　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-26</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>11 June 2001</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　a)☒ All   b)☐ Some * c)☐ None of:

　　1.☐ Certified copies of the priority documents have been received.

　　2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>1/15/02</u>.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

1.   Claims 1 – 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Muwafi (U.S. Patent 5,787,025) in view of ATSC (Standard A/52 – Digital Audio

Compression Standard AC-3).

2.   Regarding Claims 1 and 12, Muwafi discloses a method to perform either single

precision or double precision arithmetic operations on data and an arithmetic

manipulation unit which has two operating modes: a single precision mode in which it

performs arithmetic operations on N-bit data words and a double precision mode in

which it performs arithmetic operations on 2N-bit data words (col. 3 lines 56 – 64) (i.e. a

transform encoding process implemented on a fixed point digital signal processor

having multiple levels of computation precision, wherein the transform encoding process

includes a plurality of computation stages involving arithmetic operations in transforming

the digital audio data into coded audio data, and wherein different ones of the

computation stages utilize different preselected levels of computational precision.

Muwafi does not disclose the transform encoding process is in accordance with AC-3

Digital Audio Compression Standard. ATSC discloses the AC-3 Digital Audio

Compression Standard. It would have been obvious to one of ordinary skill in the art to

use a known compression standard such as AC-3. It is considered merely as one of several straightforward possibilities from which the skilled person would select in accordance with circumstances, without the exercise of inventive skill.

3.   Regarding Claims 2 and 13, in addition to the elements stated above regarding claim 1, Muwafi discloses a digital processor which comprises an arithmetic manipulation unit which is able to perform digital signal processing operations on N-bit words when it operates in single precision mode, and on 2N-bit words when it operates in double precision mode (col. 3 lines 56 – 64) (i.e. wherein the digital signal processor comprises a 16-bit digital signal processor which is capable of single (16-bit) precision computations and double (32-bit) computations).

4.   Regarding Claims 3 and 14, in addition to the elements stated above regarding claims 1, 2, 12 and 13, ATSC discloses a method of transient detection, windowing, frequency transformation, coupling strategy determination, coupling channel computation, and rematrixing determination and computation (see section 8.2).

5.   Regarding Claims 4 and 15, in addition to the elements listed above in claims 1, 2, 12 and 13, ATSC discloses detecting transients (section 8.2). ATSC does not disclose single precision computation. Muwafi discloses a single precision computation (col. 3 lines 56 – 64). Motivation to combine these elements is given above regarding claim 1.

6.   Regarding Claims 5 and 16, in addition to the elements listed above in claims 1, 2, 12 and 13, ATSC discloses a windowing function (section 8.2). ATSC does not disclose single precision audio data and double precision coefficients. Muwafi discloses

single precision audio data and double precision coefficients (col. 3 lines 56 – 64).

Motivation to combine these elements is given above regarding claim 1.

7.   Regarding Claims 6 and 17, in addition to the elements listed above in claims 1,

2, 12 and 13, ATSC discloses windowing function (section 8.2). ATSC does not

disclose double precision audio data and double precision coefficients. Muwafi

discloses single precision audio data and single precision coefficients (col. 3 lines 56 –

64). Motivation to combine these elements is given above regarding claim 1.

8.   Regarding Claims 7 and 18, in addition to the elements listed above in claims 1,

2, 12 and 13, ATSC discloses frequency transformation (section 8.2). ATSC does not

disclose double precision data and double precision coefficients. Muwafi discloses

single precision audio data and single precision coefficients (col. 3 lines 56 – 64).

Motivation to combine these elements is given above regarding claim 1.

9.   Regarding Claims 8 and 19, in addition to the elements listed above in claims 1,

2, 12 and 13, ATSC discloses a coupling strategy determination (section 8.2). ATSC

does not disclose single precision computation. Muwafi discloses a single precision

computation (col. 3 lines 56 – 64). Motivation to combine these elements is given

above regarding claim 1.

10.   Regarding Claims 9 and 20, in addition to the elements listed above in claims 1,

2, 12 and 13, ATSC discloses the power in the original channel within a coupling band

is divided by the power in the coupling channel within the coupling band. This power

ratio becomes the coupling coordinate. The coupling coordinates are converted to

floating point format and quantized. The exponents for each channel are examined to

see if they can be further scaled by 3, 6, or 9 (sec. 8.2.5.2). ATSC does not disclose

single precision computation. Muwafi discloses a single precision computation (col. 3

lines 56 – 64). Motivation to combine these elements is given above regarding claim 1.

11.   Regarding Claims 10 and 21, in addition to the elements listed above regarding

claims 1, 2, 12 and 13, ATSC discloses forming a coupling channel (sec. 8.2). ATSC

does not disclose double precision data. Muwafi discloses a double precision

computation (col. 3 lines 56 – 64). Motivation to combine these elements is given

above regarding claim 1.

12.   Regarding Claims 11 and 22, in addition to the elements stated above regarding

claims 1, 2, 12 and 13, ATSC discloses a rematrix determination and coding process

(sec. 8.2). ATSC does not disclose single precision data or double precision data.

Muwafi discloses single precision data computation and double precision data

computation (col. 3 lines 56 – 64). Motivation to combine these elements is given

above regarding claim 1.

13.   Regarding Claim 23, Muwafi discloses a method to perform either single

precision or double precision arithmetic operations on data and an arithmetic

manipulation unit which has two operating modes: a single precision mode in which it

performs arithmetic operations on N-bit data words and a double precision mode in

which it performs arithmetic operations on 2N-bit data words (col. 3 lines 56 – 64) (i.e. a

first computation block structured to perform arithmetic operations in transforming the

digital audio data into the compressed audio data using a first level of computational

precision and a second computation block coupled to the first computation block and

structured to perform arithmetic operations in transforming the digital audio data into the compressed audio data in concert with the first computation block, the second computation block using a second level of computation precision that is different from the first level of computational precision). Muwafi does not disclose AC-3 Digital Audio Compression Standard. ATSC discloses the AC-3 Digital Audio Compression Standard. Motivation to combine these elements is stated above regarding claim 1.

14.   Regarding Claim 24, in addition to the elements listed above regarding claim 23, Muwafi discloses an Arithmetic manipulation unit and a processor (col. 3 lines 56 - 64) (i.e. computer instructions that are executed by a digital signal processor).

15.   Regarding Claim 25, in addition to the elements listed above regarding claim 23 ATSC discloses transient detection (sec 8.2). ATSC does not disclose single precision computations. Muwafi discloses single precision computations (col. 3 lines 56 – 64). Motivation to combine these elements is stated above regarding claim 1.

16.   Regarding Claim 26, in addition to the elements listed above regarding claim 23, ATSC discloses a windowing function (sec. 8.2). ATSC does not disclose single precision audio data and double precision coefficients. Muwafi discloses single precision audio data and double precision coefficients (col. 3 lines 56 – 64). Motivation to combine these elements is listed above regarding claim 1.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew C Flanders whose telephone number is (703) 305-0381. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forrester Isen can be reached on (703) 305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HUYEN LE
PRIMARY EXAMINER

acf